beginning of the 2N+μ block of samples to the end of the 2N remaining samples; and folding and adding μ2 samples from the end of the 2N+μ block of samples to the beginning of the 2N remaining samples.

- a stripping means (s/p) for removing said cyclic extension from a DMT-symbol.

2. (Twice Amended) A telecommunications system, as claimed in claim 1, wherein said at least two modems are Zippermodems.

3. (Twice Amended) A telecommunications system as claimed in claim 1, wherein said cyclic extension further comprises:

- a suffix which is greater than, or equal to, a channel's propagation delay; and
- a prefix which is greater than, or equal to, a guard time needed to eliminate inter-symbol interference.

5. (Twice Amended) A telecommunications system, as claimed in claim 1, wherein the same number of sub-carriers are used for transmission in an up stream direction as are used for transmission in a down stream direction.

6. (Twice Amended) A telecommunications system, as claimed in claim 1, wherein a different number of sub-carriers are used for transmission in an up stream and a down stream directions.

11. (Twice Amended) A method in a telecommunication system having at least two VDSL systems adapted to asynchronously transmit DMT-symbols between modems; each of the at least two VDSL systems comprising a pair of modems, said at least two VDSL systems belonging to a binder group common to both VDSL systems, comprising the steps of:

- in a transmitter in a first modem in a pair of modems
- cyclic extend a DMT-symbol by way of adding a prefix and a suffix;
- pulse shaping side lobes of the cyclic extended DMT-symbol;

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- transmit the cyclic extended and pulse shaped DMT-symbol to a transmission channel;
- and in a receiver in a second modem in the pair of modems
- windowing the DMT-symbol which transmits on the transmission channel by way of multiplying μ samples at the beginning and end of a block of $2N+\mu$ samples; folding and adding $\mu/2$ samples from the beginning of the $2N+\mu$ block of samples to the end of the $2N$ remaining samples; and folding and adding $\mu/2$ samples from the end of the $2N+\mu$ block of samples to the beginning of the $2N$ remaining samples, and removing said cyclic extension from a DMT-symbol.

15. (Twice Amended) A method as claimed in claim 11, further comprising transmitting the same number of sub-carriers in both an upstream and a down stream direction.

16. (Twice Amended) A method as claimed in claim 11, further comprising transmitting a different number of sub-carriers in an up stream and a down stream direction.

Please add the following new claims.

17. (New) In a frequency division duplex communication system having a plurality of transmission channels, each transmission channel of the plurality of transmission channels having a plurality of discrete carrier frequencies, a method for transmitting a frequency domain symbol on one of the plurality of transmission channels, the frequency domain symbol having a plurality of frequency components, the method comprising:

a) deriving a time domain symbol from the plurality of frequency components of the frequency domain symbol;

b) reducing the frequency content of the time domain symbol so as not to interfere with other symbols on other transmission channels by pulse shaping the time domain symbol in order to reduce crosstalk in other transmission channels of the plurality of transmission channels; and

c) further reducing the frequency content of the time domain symbol so as not to interfere with the other symbols on the other transmission channels by applying a windowing function to the time domain symbol.

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18.   (New) The method of claim 17, further comprising adding at least one cyclic extension to the time domain symbol before pulse shaping the time domain symbol.

19.   (New) The method of claim 18, wherein adding at least one cyclic extension to the time domain symbol further comprises adding at least one of a cyclic prefix and a cyclic suffix to the time domain symbol.

20.   (New) The method of claim 18, wherein reducing the frequency content of the time domain symbol further comprises pulse shaping the at least one cyclic extension of the time domain symbol.

21.   (New) The method of claim 18, wherein reducing the frequency content of the time domain symbol further comprises pulse shaping the time domain symbol using a raised cosine pulse.

22.   (New) The method of claim 19, wherein the act of adding at least one of a cyclic prefix and a cyclic suffix to the time domain symbol further comprises adding at least one of a cyclic prefix and cyclic suffix to the time domain symbol, the cyclic prefix having a length greater than or equal to a guard time needed to eliminate inter-symbol interference and the cyclic suffix having a length greater than or equal to a propagation delay of the transmission channel.

23.   (New) The method of claim 18, wherein the act of further reducing the frequency content of the time domain symbol further comprises:
    multiplying μ samples of at the beginning and end of a block of $2N+\mu$ samples of the time domain symbol;
    folding and adding $\mu/2$ samples from the beginning of the block of $2N+\mu$ samples of the time domain symbol to the end of the remaining $2N$ samples of the time domain symbol; and
    folding and adding $\mu/2$ samples from the end of the block of $2N+\mu$ samples of the time domain symbol to the beginning of the remaining $2N$ samples of the time domain symbol.

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24. (New) In a frequency division duplex communication system having a transmission channel, the transmission channel having a plurality of discrete carrier frequencies, an apparatus for transmitting a frequency domain symbol having a plurality of frequency components, the apparatus comprising:

a) a processor having an input and an output that receives the frequency domain symbol at the input of the processor and generates, based on the plurality of frequency components of the frequency domain symbol, a first time domain symbol at the output of the processor;

b) a pulse shaper having an input and an output that receives at the input of the pulse shaper the first time domain symbol and shapes the first time domain symbol so as not to interfere with other symbols on other transmission channels in order to generate a second time domain symbol at the output of the pulse shaper; and

c) a windowing element having an input and an output that receives the second time domain symbol at the input of the windowing element and applies a windowing function to the second symbol so as not to interfere with other symbols on other transmission channels in order to generate a third time domain symbol at the output of the windowing element.

25. (New) The apparatus of claim 24, further comprising means for adding at least one cyclic extension to the time domain symbol before pulse shaping the time domain symbol.

26. (New) The apparatus of claim 25, wherein the means for adding at least one cyclic extension to the time domain symbol further comprises means for adding at least one of a cyclic prefix and a cyclic suffix to the time domain symbol.

27. (New) The apparatus of claim 25, wherein the pulse shaper further comprises means for pulse shaping the cyclic extensions of the time domain symbol.

28. (New) The apparatus of claim 25, wherein the pulse shaper further comprises means for pulse shaping the first DMT symbol using a raised cosine pulse.

29. (New) The apparatus of claim 26, wherein the cyclic prefix has a length greater than or equal to a guard time needed to eliminate inter-symbol interference and the cyclic suffix has a length greater than or equal to a propagation delay of the transmission channel.

30.   (New) The apparatus of claim 25, wherein the windowing element further comprises:

means for multiplying μ samples of at the beginning and end of a block of $2N+\mu$ samples of the time domain symbol;

means for folding and adding $\mu/2$ samples from the beginning of the block of $2N+\mu$ samples of the time domain symbol to the end of the remaining 2N samples of the time domain symbol; and

means for folding and adding $\mu/2$ samples from the end of the block of $2N+\mu$ samples of the time domain symbol to the beginning of the remaining 2N samples of the time domain symbol.

31.   (New) In a frequency division duplex communication system having a transmission channel, the transmission channel having a plurality of discrete carrier frequencies, an apparatus for transmitting a frequency domain symbol having a plurality of frequency components, the apparatus comprising:

a) means for deriving a time domain symbol from the plurality of frequency components of the frequency domain symbol;

b) means for reducing the frequency content of the time domain symbol so as not to interfere with other symbols on other transmission channels by pulse shaping the time domain symbol; and

c) means for further reducing the frequency content of the time domain symbol so as not to interfere with the other symbols on the other transmission channels by applying a windowing function to the time domain symbol.

32.   (New) In a frequency division duplex communication system having a transmission channel, the transmission channel having a plurality of discrete carrier frequencies, and a pair of modems, the pair of modems including a first modem located at a first end of the transmission channel and a second modem located at a second end of the transmission channel, a method for transmitting a frequency domain symbol having a plurality of frequency components, the method comprising: